

Appl. No. 09/388,265
Amdt. dated April 30, 2004
Amendment under 37 CFR 1.116 Expedited Procedure
Examining Group

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-7 (Canceled).

Listing of Claims:

- 1 8. (currently amended) An ohmic contact in a semiconductor device which is
2 formed on a p-type semiconductor material, the ohmic contact including a layer of p-type
3 semiconductor oxide and metal in a condition of mixed morphology, wherein both the p-type
4 semiconductor oxide and the metal directly connect to the p-type semiconductor material.
- 1 9. (previously presented) The ohmic contact as claimed in claim 8, wherein
2 the p-type semiconductor oxide includes a single oxide.
- 1 10. (previously presented) The ohmic contact as claimed in claim 8, wherein
2 the p-type semiconductor oxide includes a mixture of various oxides.
- 1 11. (previously presented) The ohmic contact as claimed in claim 8, wherein
2 the p-type semiconductor oxide includes a solid solution of various oxides.
- 1 12. (previously presented) The ohmic contact as claimed in claim 8, wherein
2 the semiconductor material is p-type $Al_xGa_yIn_zN$, and $0 < x, y, z < 1$, and $x + y + z = 1$.
- 1 13. (previously presented) The ohmic contact as claimed in claim 8, wherein
2 the p-type semiconductor oxide is one of NiO , MnO , FeO , Fe_2O_3 , CoO , CrO , Cr_2O_3 , CrO_2 ,
3 CuO , Cu_2O , SnO , Ag_2O , $CuAlO_2$, $SrCu_2O_2$ and PdO .
- 1 14. (previously presented) The ohmic contact as claimed in claim 8, wherein
2 the metal is Au, Pt, Rh, Ru, or Ir.

Appl. No. 09/388,265
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1 15. (previously presented) The ohmic contact as claimed in claim 12, wherein
2 the semiconductor material is p- type GaN.

1 16. (previously presented) An ohmic contact in a semiconductor device, which
2 is formed on a p-type semiconductor material, the ohmic contact comprising a layer of p-type
3 semiconductor oxide and a conductive layer, wherein the layer of p-type semiconductor oxide is
4 located on the p-type semiconductor material, and the conductive layer is located on the layer of
5 p -type semiconductor oxide.

1 17. (previously presented) The ohmic contact as claimed in claim 16, wherein
2 the semiconductor material is p-type $Al_xGa_yIn_zN$, and $0 \leq x, y, z \leq 1$, and $x+y+z = 1$.

1 18. (previously presented) The ohmic contact as claimed in claim 16, wherein
2 the p-type semiconductor oxide is one of NiO, MnO, FeO, Fe_2O_3 , CoO, CrO, Cr_2O_3 , CrO_2 ,
3 CuO, Cu_2O , SnO, Ag_2O , $CuAlO_2$, $SrCu_2O_2$, $LaMnO_3$, $YBa_2Cu_4O_8$ and PdO.

1 19. (previously presented) The ohmic contact as claimed in claim 16, wherein
2 the layer of semiconductor oxide includes a single oxide layer.

1 20. (previously presented) The ohmic contact as claimed in claim 16, wherein
2 the layer of semiconductor oxide includes a plurality of layers of oxides of the same conductivity
3 type.

1 21. (previously presented) The ohmic contact as claimed in claim 16, wherein
2 the layer of semiconductor oxide includes a mixture layer of various oxides.

1 22. (previously presented) The ohmic contact as claimed in claim 16, wherein
2 the layer of semiconductor oxide includes a solid solution layer consisting of various oxides.

1 23. (previously presented) The ohmic contact as claimed in claim 16, wherein
2 the conductive layer includes a single metal layer.

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1 24. (previously presented) The ohmic contact as claimed in claim 16, wherein
2 the conductive layer includes a plurality of metal layers.

1 25. (previously presented) The ohmic contact as claimed in claim 16, wherein
2 the conductive layer is a transparent conductive film.

1 26. (previously presented) The ohmic contact as claimed in claim 17, wherein
2 the semiconductor material is p-type GaN.

1 27. (previously presented) The ohmic contact as claimed in claim 25, wherein
2 the transparent conductive film is conductive oxide, including indium-tin oxide, ZnO and ZnO
3 doped with Ga, In, Al or Ce.